

Serial No.: 10/673,693
Amendment dated: February 17, 2005
Reply to Office Action of: November 17, 2004
Atty. Docket No.: JJK-0329 (P2002J099)

REMARKS

Claims 1,8,15 and 20 have been amended to specify that the dewaxing catalyst is ZSM-48 and the hydrofinishing catalyst is MCM-41 as supported on page 12, lines 7-8.

Hydrofinishing occurs without disengagement (page 11, lines 20-23).

Claims 5-7, 12-14, 19, 24 and 26-37 have been cancelled without prejudice.

Rejection of claims under 35 U.S.C 102

The Examiner rejected claims 1-6, 15-19, and 32-36 under 35 U.S.C. 102(b) as being anticipated by Baker et al. (5,951,848).

The Examiner's Position

The Examiner cited Baker as disclosing a process for catalytic dewaxing a feedstock. The feedstock, which comprises about less than 5,000 ppm of sulfur compounds and about 50 ppm of nitrogen compounds, is first passed into a hydrotreating zone to remove nitrogen and sulfur compounds. The hydrogenating zone is operated at a temperature of from 300 to 450° C, at a pressure of from 6900 to 20700 kPa, at a LHSV of from 0.1 to 10 hr⁻¹, and at a hydrogen rate of from 200 to 800 SCF/Bbl (900 to 1800 m³/m³). The effluent from the hydrotreating zone is entirely passed into a dewaxing zone containing a dewaxing catalyst including ZSM-48, a metal hydrogenation component (e.g., Pt or Pd). The dewaxing zone is operated at conditions similar to the hydrotreating zone. The product from the dewaxing zone is further treated in a hydrofinishing zone. (See col. 1, lines 9-20; col. 2, line 46 through col. 3, line 3; col. 4, line 14 through col. 5, line 29; col. 8, line 1 through col. 10, line 47)

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Applicants' Position

Claims 19 and 32-36 have been cancelled. Claims 1 and 18 have been amended and renumbered to specify the dewaxing catalyst as ZSM-48 and to incorporate hydrofinishing of the catalyst ZSM-48 and to hydrodewaxed product without a disengagement step using a MCM-41 catalyst. The Baker reference is silent as to the use of a MCM-41 hydrofinishing catalyst and is silent as to the use of a hydrofinishing catalyst without disengagement.

Examiner's Position

Claims 20-24 were rejected under 35 U.S.C. 102(b) as being anticipated by Xiao et al. (6,264,826).

The Examiner cited Xiao as disclosing a process for preparing lubricating base oils from a sulfur containing feedstock. The feedstock is derived from a solvent extracting process wherein foot oils is prepared by separating oil from the wax. The foot oils, which comprises about 0.5 to 2.5 wt.% (5000 to 25,000 ppm) of sulfur compounds and about 50 to 2000 ppm of nitrogen compounds, is fed into a hydrotreating zone wherein nitrogen and sulfur compounds are removed. The hydrotreating is operated at a temperature of from 260 to 427° C, at a pressure of less than 11 Mpa, at LHSV of about 0.5, and at hydrogen rate of about 722 m³/m³. The entire effluent from the hydrotreating zone is then fed into a dewaxing zone containing a dewaxing catalyst including ZSM-5 and SAPO-11, a metal hydrogenation component (e.g., Pt or Pd). The dewaxing process is operated at temperature of from 400 to 900° F, at a pressure of from .45 to 20.8 Mpa, at LHSV of from about 0.1 to 5 hr⁻¹, and at hydrogen gas rates of from 89.1 to 1780 m³/m³. The product from the dewaxing zone is then passed into a hydrofinishing zone to provide a final product. (See col. 2, line 51 through col. 6, line 59; col. 8, line 53 through col. 10, line 40).

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Applicants' Position

Amended claim 20 now specifies ZSM-48 as the dewaxing catalyst. Xiao does not disclose ZSM-48. Xiao does not list ZSM-48 in the list of zeolitic catalysts set forth in col. 9, lines 46-61. Unlike the options available for dewaxing the hydrotreated oil set forth by Xiao in col. 9, lines 3-13, Xiao is silent on Applicants' claim wherein hydrodewaxed product is passed without disengagement to hydrofinishing. Finally, the hydrogenation catalysts after dewaxing are macroporous on an (amorphous) inorganic oxide matrix such as alumina (col. 12, lines 7-38 of Xiao). In contrast, the MCM-41 hydrofinishing catalyst of claim 20 is mesoporous and crystalline (specification, page 12, paragraph 31).

Claim Rejections under 35 U.S.C. 103

Examiner's Position

Claims 7-14 and 37 were rejected under 35 U. S. C. 103 (a) as being unpatentable over Baker et al. (5,951,848) in view of either Lucien et al. (4,906,350) or Cody et al. (5,935,417).

Baker does not specifically disclose that the dewaxing zone comprises a second catalyst.

Both Lucien and Cody teach that ZSM-5 and/or ZSM-48 can be utilized in a dewaxing process. (See Lucien, claim 2; Cody; col. 7, lines 10-16)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Baker by using a second catalyst such as ZSM-5 because both Lucien and Cody teaches that ZSM-5 and ZSM-48 have equivalent function in a dewaxing process. It would reasonably expect that the results would be the same or similar when using the individual catalyst or combination of both in the process of Baker.

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Applicants' Position

Claims 7, 12-14 and 37 have been cancelled. Claims 12-14 are incorporated into claim 8. Amended claim 8 now specifies that the catalyst combination is that of ZSM-48 with ZSM-5 or beta.

First the combination of Baker with either Lucien or Cody does not lead to applicants two catalyst system. The listing of numerous zeolites suitable as dewaxing catalysts does not lead to the conclusion that ZSM-5 and ZSM-48 have equivalent function. Cody states that catalytic dewaxing, solvent dewaxing or a combination thereof may accomplish dewaxing (col 7, lines 6-9). But this does not mean that the two modes of dewaxing are interchangeable. Indeed one is a physical process whereas the other involves a chemical process. By the same token, ZSM-5 (and zeolite beta) as a dewaxing catalyst function by cracking wax molecules resulting in yield loss whereas ZSM-48 is an isomerizing catalyst. Therefore ZSM-5 and ZSM-48 are not equivalents and do not perform an equivalent function. There is no basis to conclude that the results would be the same or similar when using the individual catalyst or both in the process of Baker.

Examiner's Position

Claims 25 and 31 were rejected under 35 U. S. C. 103(a) as being unpatentable over Xiao et al. (6,264,826) in view of either Lucien et al. (4,906,350) or Cody et al. (5,935,417).

The Examiner expressed the view that Xiao does not disclose the dewaxing catalyst is ZSM-48.

Both Lucien and Cody teach that a ZSM-5 and/or ZSM-48 can be utilized in a dewaxing process. (See Lucien, claim 2; Cody, col. 7, lines 10-16)

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Baker by using ZSM-48 as taught by Lucien and Cody because ZSM-48 have an equivalent function as ZSM-5 in a dewaxing process. It would reasonably expect that the results would be the same or similar when using ZSM-48 in the process of Xiao.

Applicants' Position

The Examiner will note that both claims 25 and 31 are incorporated into the independent claims on which they depended. Newly amended claim 25 is directed to the feedstock blend of claim 26 which is now cancelled.

Applicants have already addressed the issue of ZSM-48 and ZSM-5 having equivalent function in the response to the rejection of claims 7-14 and 37. Therefore Applicants do not agree that ZSM-48 and ZSM-5 have equivalent function and would be considered interchangeable by one skilled in the art. ZSM-5 by virtue of its cracking ability would dewax by a different way than would ZSM-48 and result in a greater yield loss as compared to ZSM-48.

Examiner's position

Claim 26-30 were rejected under 35 U. S. C. 103 (a) as being unpatentable over Xiao et al. (6,264,826) in view of Cody et al. (5,935,417). The Examiner cited Xiao as not specifically disclosing a step of blending a raffinate feedstock and at least one of a slack wax or foots oil. However, Cody discloses a step of blending a raffinate feedstock with foots oil to form a blended feedstock. (See col. 5, lines 9-15)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Xiao by using the blend feedstock of

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Cody because any waxy feedstock can be used in the process of Xiao. Therefore, it would be expected that the blend feedstock would be successfully treated in the process of Xiao.

Applicants' Position

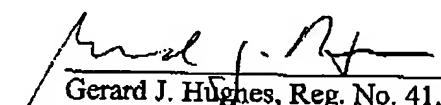
The Examiner will note that claims 26-30 have been cancelled. However, the feed stock of old claim 26 is now expressed in amended claim 25 which is patentable over the art for the reasons noted below.

The Xiao reference does not disclose ZSM-48 and the combination of Xiao and Cody does not teach or suggest that the hydrodewaxed product could be passed to hydrofinishing without disengagement to hydrofinishing over MCM-41 hydrofinishing catalyst.

Based on the preceding arguments and amendments, the Examiner is requested to reconsider and withdraw all objections and rejections and pass this application to allowance. The Examiner is encouraged to contact applicants' attorney should the Examiner wish to discuss this application further.

Respectfully submitted:

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